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ABSTRACT

Higher Horizons 100 (HH 100) is a compensatory program in the Hartford, Connecticut public schools designed to provide underachieving and undermotivated secondary school students with an integrated program of academic, cultural, and counseling services. HH 100 services were designed to develop and improve the basic skills of language and mathematics, self concept, and school adjustment. In addition to improving basic skills, students in the HH 100 program were expected to improve their attendance records and attitudes about themselves and school. Staff and students reported positive improvements in all areas as a result of participation in the program. The 1983-84 school year was the first time since the program's inception that it did not operate under special fund aegis. Therefore, students who were underachieving, undermotivated, or deficient in one or more skill areas could be selected for instruction rather than just students who had tested below the 23rd percentile on the Metropolitan Achievement Tests reading, language, and mathematics subtests. (DWH)

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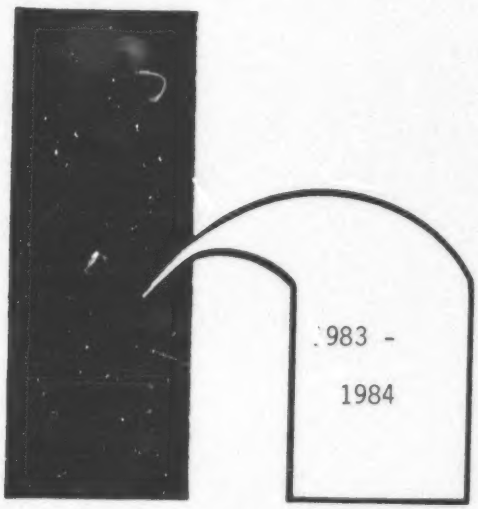
An Evaluative Report

HIGHER HORIZONS 100

REPORT 84 - 11



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HIGHER HORIZONS 100

- 1983 - 1984 Compensatory Program Evaluation -

Report 84-11

The Program in Brief

Since its inception during the 1965-66 school year, Higher Horizons 100 has provided groups of secondary school youngsters with an integrated program of academic, cultural, and counseling services. HH 100 services were designed to develop and improve the basic skills of language and mathematics, self-concept, and school adjustment. In 1983-84, HH 100 shifted from compensatory to general budget funding and with it, to a new set of operational guidelines; these were aimed at developmental rather than remedial services. HH 100 operated a ninth-grade team at each of the city's three high schools, a seventh and eighth grade team at Fox Middle School, and a Grade 7 team at the Quirk Middle School. Each team was staffed with five teachers, a counselor, and a project aide. Four-hundred seventy-five students were served in the program.

What Did the Evaluation Find?

The evaluation produced a number of interesting findings:

1. Spring 1983 to spring 1984 MAT test scores showed absolute gains for each of the teams, middle-school grade levels, and the program as a whole in reading, mathematics, and language arts over the course of the school year.

2. When these same standard scores were converted to percentiles so as to determine whether relative placement standings had improved, with but few exceptions improvements could be reported. Gains were most evident in the areas of mathematics and language arts.

3. Examinations of test scores for new students and those who had been in the program for more than one year were also conducted. Both spring-to-spring and fall-to-spring testing indicated that newly-enrolled HH 100 students attained what were essentially normal gains during their first HH 100 year. In the second year of HH 100, gains tended to improve slightly, and in the third year, gains in math and in language arts in particular were educationally significant. This pattern supports the stated contention that more than one year, and probably three, may be necessary to provide appropriate remedial-skill services, so as to enable enrollees not only to make normal gains but to significantly improve their relative placement standings.

4. Attendance figures were particularly salutary. Team and grade level percentages of attendance not only exceeded the expected standards, but average attendance percentages of the hosting schools and grade levels as well. Attendance for the total project was over 91%, with no team falling below the 88% figure.

5. HH 100 students used a spring questionnaire to report that they had achieved a realistic or positive attitude toward themselves and toward school. They also noted that the program had helped them in each of the areas which were queried, that school and inter-student activities were postive most of the time, that they were getting along with other students, and that they did the best that they could most of the time. Comments also suggested that HH 100 students were supportive to the program, that HH 100 had helped them, and that they had a positive view of themselves in relation to school work, school, and their academic future. Anecdotal comments were also aimed primarily at academic program elements; the teachers, the standards, and the subjects which had helped them to learn.

6. Graduating seniors who had been in HH 100 four years ago also received a questionnaire in the spring of their senior year. Here again, responses mirrored those reported for present HH 100 enrollees with the alumni also reporting that where HH 100 had helped them and what they liked the most was the assistance provided by teachers in the various subjects. Comments about projects and trips were also oriented toward the academic impact role of the program, and not on the more social aspects.

7. When HPHS senior HH 100 alumni were rated by the English staff, all but 15 were viewed as being average or above in general attitude toward learning, attendance, preparedness for class and general behavior.

8. Finally, several other indicators of program success could be reported. Sixty-seven percent of the students who had started HH 100 four years ago graduated with their class, while 28% of those students also received special awards. This was in sharp comparison with the 39% mainstream graduates who had also started their HPHS program four years ago.

Recommendations and Implications

1. For the first time in over a decade HH 100 did not operate under special fund aegis; hence, youngsters who were underachieving, undermotivated, or deficient in one or more skill areas could be selected for instruction rather than just the students who had tested below the 23rd percentile. While one team

noted that they were not involved in the selection process, test-score analysis indicated that remedial youngsters (-23%ile) were generally not enrolled. This was in keeping with the selection criteria. Even so, it is again suggested that if teams are not to be involved in the selection process, or if selections are to be subject to administrative sanctions, this should be spelled out in advance so that there will be no misunderstandings or perceptions that the appropriate selection plan is not being carried out.

2. In the past, a majority of the HH 100 youngsters were remedial students. For these youngsters, both absolute and relative test score gains in reading, mathematics, and in language showed appreciable levels of improvement even though these improvements were not as great as those which had been typically reported. The remedial nature of the program suggested that more than one year was required for program services to take hold, and this contention was substantiated by data which indicate that while essentially normal gains are achieved during the first year of the program, two additional years are required before significant placement-standing improvements are made. A further substantiation of this contention suggests several changes in the evaluation design. First, to determine whether youngsters selected for HH 100 were making less-than-normal gains during the preceding school years, test and other data covering the two years prior to HH 100 enrollment should be collected and these gain patterns compared with HH 100 evidences of student growth; during the first year, and in each subsequent year of program enrollment.

3. Next, since gains seem to improve each year during HH 100 enrollment, and other evidences suggest that HH 100 alumni continue to do well in school, an attempt should be made to assess post-program improvements. Since city-wide testing extends through the spring of Grade 10, test scores one year after students have exited the program should be examined in an attempt to determine whether gain patterns improve or simply persist.

4. Finally, data should continue to be collected on HH 100 alumni achievements, successes, and reactions to the program. This will not only add credibility to the program, but will also provide added evidences of success. These data may be needed to justify future funding, and will be particularly useful in State and national validation efforts. As a case in point, HH 100 was selected as a State and nationally-validated program that works; it is also up for revalidation this year.

How Were Program Services Provided?

The Higher Horizons Program was started during the 1965-66 school year as a Hartford Public High School (HPHS) ninth-grade demonstration center. The program was modeled, to some extent, on the New York City project of the same name. Higher Horizons 100 (HH 100) as the project was soon called, introduced a new concept of clustering to the city. This key innovation provided some 100 youngsters with a small counselor-student ratio (1:100), a small student-teacher ratio (1:20), and both program and scheduling flexibility which allowed for team planning and responsive instructional services. This concept allowed HH 100 team to identify and serve students having a potential to enter and complete college. HH 100 youngsters were selected on the basis of average intelligence and a good school record, although they were generally one-to-three years behind grade level in reading. In essence, HH 100 students were underachievers.

HH 100's start-up funding came from Connecticut's State Aid for Disadvantaged Children (SADC), and was later changed to Title I, ESEA, and to Chapter I, ECIA. During the early years of both SADC and Title I funding, there were no specific guidelines for students selection save two; the student had to be disadvantaged and live in a Title I validated attendance area. About ten years ago however, the Connecticut State Department of Education developed a series of more restrictive guidelines for SADC and Chapter I-funded compensatory programs. While disadvantagement had generally been defined as being below grade level, the new regulations required the youngsters to test below the 23rd percentile on a standardized test. This requirement had a dramatic effect on the HH 100 program; it forced the program to shift emphasis from developmental instruction which produced results over the course of one school year, to a multi-year program which was essentially remedial in nature. Further, since the new guidelines also required all compensatory services to be supplementary and not simply new and different, the State interpreted these to mean that only the additional counseling time, supplementary language arts instruction, cultural activities, and some clerical assistance could be funded. And, since HH 100 had grown from the first HPHS cluster to a program which now provided services to ninth graders at each of the city's three high schools, to a tenth-grade cluster at HPHS, and to two clusters at each of the grade 7-8 middle schools, these guidelines had a substantial impact on the budget. Further, since the four middle school HH 100 clusters had operated about the same as the other clusters within their respective schools, this created an additional financial problem since here HH 100 cluster services could no longer be funded.

In 1983, HH 100 funding was transferred to the general budget. What this meant was that the program was no longer required to operate in accord with State compensatory program guidelines. Even so, even this shift provided a number of problems. Since HH 100 had become a multi-year program with many of its students entering a cluster in the seventh grade, and continuing on through their ninth-grade year, a substantial portion of the students were continuing under the old criteria; they were a remedial population which had tested below the 23rd percentile. Further, some confusion as to the type of students which qualified for the HH 100 program was also reported. At Fox Middle School, for example, it was noted that while the city-wide Metropolitan Achievement Test scores were generally in the average range, the general quality of students in terms of basic skills and attitudes toward learning was not in accord with the planned selection process. And finally, some questions evolved about the objectives and the level of student expectation. These latter issues will be discussed in another section of this report.

In a real sense, the Higher Horizons 100 (HH 100) concept came full circle during the 1983-84 school year; it had grown from a one-site program which was aimed at underachieving, unmotivated students with the potential to complete a high school education and beyond in 1965, to a multi-school compensatory program, a remedial program, and now back to the original concept where HH 100 was once again aimed at helping the underachiever. Even so, the HH 100 overall goal remained substantially unchanged over the years; it continued to focus on the development and improvement of language skills, self-concept, and school-adjustment capabilities. While compensatory-program guidelines which had required HH 100 students to test below the 23rd percentile on a standardized test before admission to the program, or below the 35th percentile test to continue in the program during subsequent years were no longer in effect, several traditional characteristics were used to identify potential HH 100 students. These included depressed standardized test scores in reading and/or math which were typically one-to-three years below grade level, a consistently good attendance record, a stable personality as indicated by a lack of major disciplinary offenses (MDOs), and recommendations from teachers and counselors. Attendance and personality characteristics, which could not always be applied under compensatory funding, were seen as being particularly important since it was assumed that adequate assistance could not be provided to a youngster who was not in regular classroom attendance.

Of the various selection criterion used by HH 100, by far the most important was the teacher/counselor recommendation. Since underachieving or unmotivated students were prime candidates for the HH 100 program, their acceptance into a cluster could not be contingent upon test scores alone. Instead, an individual assessment of each student was made by team members to determine whether or not benefits from the HH 100 approach could be expected. Here was where the recommendations received their greatest consideration.

There were also some modifications to the program structure. While HH 100 continued to provide integrated services which included remedial assistance in the language arts and in other subject areas, cultural activities, and intensive counseling services, the number of HH 100 cluster settings was reduced from 7 to 5, with a team provided at each of the three high schools and two middle schools. Each team continued to be staffed by five teachers, a guidance counselor who was assigned full time to each high school and half time to each middle school team, and a project aide. At the high-school level, project aides provided substantially full-time service to the teams, while at the middle-school level the service allocation was an estimated 75 percent.

Because HH 100 cluster settings tended to separate HH 100 students from other youngsters, a school-within-a-school atmosphere was created. This separation coupled to somewhat independent operations provided an inherent flexibility in scheduling and a capability to modify curriculum so as to attend to individual or small-group instructional needs. This flexibility, which also allowed the entire HH 100 student body and the instructional team not only to work together but to participate as a group in both school and team-sponsored activities, was one of the obvious strengths of the program.

What Special Accomplishments were Reported?

The team liaison reported that HH 100's general strategy was one of behavior modification using activities which were aimed at inspiring avenues of achievement through group and individual motivational techniques. He also reported that the teachers felt that since the evaluation was aimed at academic achievement gains and not at significant changes in attitudes, behavior, adjustment to school, responsibility, self-concept, and the improvement of socialization and scholarship skills which would ultimately lead to success, oftentimes some of the more important aspects of the program could well be overlooked. An example of this is contained in a follow-up survey of graduating seniors which is discussed in the evaluation section of this report.

Special activities scheduled by the various HH 100 clusters included the annual University of Connecticut visit wherein youngsters were exposed to some of the aspects of college life; career trips to The Travelers, Hartford Gas Company, Morgan Street Courthouse, and The Hartford Insurance Group; and an annual trip to Washington, D.C.

HH 100 speakers included members of the City Council; career education speakers who represented the professions of nursing, law, and law enforcement; and a special program on drugs and alcohol. Project business classes held over a seven-week period were conducted by speakers from industry, and a reception was held for senior students who had been in a HH 100 cluster as freshmen. Finally, the annual banquet which was held at Hartford Public High School had over 140 parents, students, and members of the District DAC committee participating.

What Problem Areas Were Reported?

Three problem areas were reported by the liaison. At the Fox Middle School, it was decided after the program had been opened in September that only eighth graders would be served. In consequence, 49 seventh graders were moved out so that 49 new eighth-graders could be enrolled. Approximately one month later, 16 students reported as being on too high a reading level were moved out and these were replaced by 15 other youngsters. It was further reported that the Fox team did not have a role in student selection although the impact of this lack of involvement could not be determined.

At Bulkeley High School, recruiting problems were reported with a September enrollment of only 65 students. Since the team continued to recruit, the final enrollment was 84, with 14 more students enrolled at the beginning of the second marking period. Again the impact of these program changes could not be determined. Suggestions for resolving some enrollment problems are contained in the recommendations section of this report.

The third problem area involved various aspects of student improvement which would not necessarily be measured by standardized tests. While cognitive gains should certainly be considered, other areas of improvement should also be evaluated; the follow-up study of HPHS graduates is an example of one of these evidences which the program produced. Further comments regarding these evidences are contained elsewhere in this narrative.

The HH 100 evaluation was designed to address two questions:

1. How Was the Evaluation Conducted?
2. To What Extent were Project Objectives Met?

Question 1: Were Services Provided in Accord with the Funding Proposal?

HH 100 operated essentially in accord with the funding expectations so far as these could be determined from written information and from conversations with the project director and liaison. Since HH 100 was general-budget funded, there was no written proposal, per se; hence, informal memos and descriptions of expectations were used instead. Staffing and students served by grade are reported on the summary statistical form contained in the Appendix.

Five teams were funded together with an added guidance counselor. This lacter position was intended to be used in a tenth-grade team which was to have opened during the second half of the school year. Since the team did not open, general counseling services were provided instead. Further, while criterion for student selection were substantially changed from those used in previous years, as has already been noted the program continued to service youngsters who had been enrolled in the preceding years; thus, 157 students or 33 percent of the total continued to be remedial students.

Finally, while it was reported that at one middle school site team members did not have input into the student-selection process, the impact of this statement on the program could be not ascertained. Suggestions for clarifying the teams role in selecting students, for assessing growth in terms of three segments of the student population to take into consideration changes in the selection criteria, and for the organization and administration of the program are contained in the recommendations section of this report.

Question 2: To What Extent were Project Objectives Met?

Three objectives were provided by the project liaison:

1. Students ... will demonstrate an improvement in their NCE scores beyond that [which] would [normally] be expected ... in reading and mathematics.

2. Students ... will achieve ... a better percentage of attendance for the academic year than that of the host school.

3. Students ... will acquire a realistic or positive attitude toward Themselves and school after ... one year in a ... cluster.

Objective 1: Students ... will demonstrate an improvement in their NCE scores beyond that [which] would [normally] be expected ... in reading and mathematics.

Before going further, explanations of both the levels of expectancy and of relevant program changes are in order. Because of the changes initiated

during the 1983-84 school year, it was evident that HH 100 youngsters would be classified into three general groupings; continuing remedial students, underachieving students who were selected on the basis of the new 1983-84 criteria, and new remedial students who had been selected because they had tested below the 23rd percentile. With respect to the remedial students, both ongoing and new, many of the youngsters came to HH 100 with long histories of failure and a lack of achievement. For these students, it seems logical to expect that the gain levels which had been obtained by HH 100 cohorts in the past (7 or more NCE gains) would probably not be continued. After all, in order to remediate a student, it is first necessary to counteract the impact of negative feelings, the lack of achievement, and possibly patterns of inadequate attendance and discipline which had been amassed over the course of several school years. In all probability then the first HH 100 year will probably produce near normal gains with an improvement of about 3 or more NCEs to be expected. Subsequent years in the program should produce gains of 5 NCEs and upward if past practice is followed.

The underachieving youngsters who were selected using the 1983-84 HH 100 criteria represent another population which has not as yet been evaluated. While the early HH 100 (1965-1974) students produced highly-significant mean gains, it is still too early to determine whether these new enrollees should be met with the same expectations; they are a new generation in what is essentially a new program. While it should be expected that above-normal growth should eventually occur, neither the level of improvement nor the time needed to produce these gains can be projected; these can best be assessed with experience and validated over time.

Objective assessment was based on a comparison of spring-to-spring Metropolitan Achievement Tests (MAT) reading, language, and mathematics standard scores. Scores were aggregated by computer on the basis of team listings of names and student I.D. numbers. Matched pre-to-post test data were examined on a team, grade, and program basis. Computer conversions of standard scores to percentiles were used to determine whether the relative placement positions of the youngsters had improved over the course of the year. This concept of relative gain assumes that without the addition of supportive or other supplementary services, youngsters will maintain about the same status as their peers in a normal classroom setting. If the position is maintained, spring-to-spring testing will show no percentile improvement. If, on the other

hand, supplementary services made a difference, then relative placement positions will improve. While any grade-level percentile gain may be considered salutary, the significance of the change cannot be easily ascertained. Since percentiles themselves are not equidistant, they cannot be added or otherwise manipulated. By converting percentiles to the equidistant normal curve equivalence (NCE) scale, and comparing changes with a standard of from 5 to 7 points or better which the literature suggests is educationally significant, it is possible to determine whether the magnitude of reported gains is in all probability due to program (5 or more NCEs) rather than to chance effects.

The assessment of spring-to-spring MAT standard scores and percentiles, together with NCE gains for each of the four single-grade teams and by grade level for the Quirk Middle School team are shown in Tables 1-3 which follow. Note here that absolute gains were produced by all of the teams, at all grade levels, and in each of the skill areas of reading, mathematics, and language arts, with but one exception; Quirk Grade 7 showed a slight standard score decrease in reading.

Table 1
Comparison of Mean Metropolitan Reading Standard Score,
Percentile, and Normal Curve Equivalent Changes by Team, Grade, and Program
Spring 1983 - Spring 1984

Team and Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	NCE
HPHS-9	68	757	40	766	38	9	-2	-1
BHS-9	72	751	38	773	42	22	4	2
WHS-9	92	752	38	760	34	8	-4	-2
Fox 8	75	707	29	734	33	27	4	3
Quirk 7	43	714	40	707	26	-7	-14	-8
Quirk 8	20	704	26	742	32	38	6	3
Total	370	737	36	751	35	14	-1	-1

Table 2
Comparison of Mean Metropolitan Mathematics Standard Score,
Percentile, and Normal Curve Equivalent Changes by Team, Grade, and Program
Spring 1983 - Spring 1984

Team and Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	Difference NCE
HPHS-9	69	759	42	762	36	3	-8	-3
BHS-9	72	750	36	765	38	15	2	1
WHS-9	93	743	32	769	40	26	8	5
Fox 8	75	693	34	736	42	43	8	4
Quirk 7	43	707	36	731	40	24	4	2
Quirk 8	20	717	32	759	42	42	10	6
Total	368	731	35	755	39	24	4	2

Table 3
Comparison of Mean Metropolitan Language Standard Score,
Percentile, and Normal Curve Equivalent Changes by Team, Grade, and Program
Spring 1983 - Spring 1984

Team and Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	Difference NCE
HPHS-9	69	761	44	783	46	22	2	1
BHS-9	72	745	34	783	46	38	12	7
WHS-9	93	740	32	769	40	29	8	5
Fox 8	75	727	47	728	38	1	-9	-4
Quirk 7	43	714	40	757	52	43	12	6
Quirk 8	20	755	52	759	62	44	10	5
Total	372	740	40	764	44	24	4	2

In addition to the absolute gains which were made by program participants, improvements in relative percentile standings could also be reported: in math, and language arts for the program as a whole, and for each team and grade level in all three tested areas with but few exceptions. At HPHS, ninth graders made about average growth in reading (-2%ile) although percentile decreases in mathematics (-8%ile) were somewhat more severe. When percentile changes were equated to the equidistant NCE scale however, in both areas the relative standing changes were nonsignificant, thus indicating that approximately normal growth was being made.

In similar fashion, WHS produced a slight relative standing decrease in reading (-4%ile). This too could have occured by chance (-2 NCE), thus indicating again that normal growth was probably being made.

At the middle school level, decreases in relative placement standings were reported for the Fox eighth graders in language (-9%ile) and for the Quirk seventh graders in reading (-14%ile). In neither instance did these decreases appear due to chance, with the Quirk decrease clearly a significant one (-8 NCE).

While the overall HH 100 gain pattern was essentially a normal one, there were some positive exceptions. In mathematics, WHS 9 and Quirk eighth graders (5 @ 6 NCEs, respectively) produced educationally-significant gains. So too did the BHS (7 NCEs) and WHS (5 NCEs) ninth graders, and both the seventh (6 NCEs) and eighth graders (5 NCEs) at Quirk in language arts.

In addition to the overall grade-level analyses, several additional data reviews were conducted. First, youngsters were separated by the number of years they had been in the program. For these students, MAT spring 1983 to spring 1984 standard-score data were analyzed on a grade-level basis. For the youngsters who were entering the program for the first year, data were also analyzed to determine whether the 1983 MAT reading standard score was at or above the 23rd percentile in accord with the new selection criteria, or was below the 23rd percentile thus indicating that in all probability, the youngster was a remedial student. These data analyses are contained in the tables which follow. New youngsters were found primarily in the seventh grade, at BHS (100%), at HPHS (82%), and at WHS (47%). For the 117 new students with matched scores, grade-level data were aggregated for the tested skill areas of reading, mathematics, and language arts in the three tables (4-6) which follow.

Table 4
Comparison of Mean Metropolitan Reading Standard Score,
Percentile, and Normal Curve Equivalent Changes
For First-Year Students
by Grade,
Spring 1983 - Spring 1984

Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	NCE
7	38	713	38	708	29	- 5	-9	-5
8	4	700	27	725	30	25	3	2
9	75	754	40	778	43	24	3	2
Total	111	739	39	753	38	14	-1	-1

Table 5
Comparison of Mean Metropolitan Math Standard Score,
Percentile, and Normal Curve Equivalent Changes
For First-Year Students
by Grade,
Spring 1983 - Spring 1984

Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	NCE
7	38	700	32	721	41	21	9	-3
8	4	716	38	742	44	26	6	3
9	73	760	50	776	51	16	1	1
Total	115	739	44	760	48	21	4	2

Table 6
Comparison of Mean Metropolitan Language Standard Score, Percentile, and Normal Curve Equivalent Changes for First-Year Students by Grade, Spring 1983 - Spring 1984

Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	Difference NCE
7	39	710	55	753	54	43	-1	-1
8	4	736	49	784	55	48	6	3
9	75	753	45	787	52	34	7	4
Total	117	748	48	770	53	38	5	3

Data on the first-year HH 100 students provided no surprises. In common with their more experienced peers, the absolute gain trend could also be reported in reading, math, and language arts with the exception of the seventh graders in reading. Here, a significant decrease in reading (-5 NCE) and a slight decrease in language was reported. In general, however, essentially normal gains were being made with slightly higher gains in language arts. Again, this pattern was typical for the overall program. Note here that eighth-grade data should be viewed with caution because of the small number of first-year students who were included in the analysis

New student data were also examined on the basis of the selection criteria. Thus, students wre separated into two groups; those who were above (new criteria) or below (old criteria) the 23rd percentile in reading. This was done because of staff comments which indicated that students were not selected in accord with the stated criteria. As it turned out, only 17 students fell below the remedial cut off. Since these data also suggest that the new HH 100 students had met at least one of the new criteria, and had tested at or above the 23rd percentile in reading, no further analysis for this small group was conducted.

The final MAT analyses were directed toward youngsters who had been in the program two and three years, respectively. Of the youngsters who were coded as having spe[illegible] two years in the HH 100 program, 20 students produced matched Spring 83 to Spring 84 MAT achievement test scores. While grade-level analyzes were not practical because of the small size of the groups, the students as a whole showed

absolute standard score gains in reading (+20), in mathematics (+35), and in language arts (+32). The students also showed percentile improvements, although these were generally nonsignificant. Rather, the level of reading improvement (.6 NCE) was about the expected growth level, while improvements in mathematics (2 NCE) and in language (2 NCE) were comparable to those reported for the students in the program as a whole. That is to say, normal growth was exhibited along with a slight relative standing improvement.

When data for the same youngsters were examined to determine the level of gain over their two-year HH 100 enrollment (1982-84), again absolute gains could be reported in each of the three subject areas. When these gains were assessed for relative standing improvement however, only in language arts was the improvement educationally significant (6 NCEs), although in reading (-1 NCE) and in mathematics (+1 NCE) essentially normal growth was reported. Although the number of students was too small for the changes to be statistically assessed, gain patterns paralleled those of the total program for both the one and two-year periods. As an interesting aside, for the 10 ninth graders with matched math pre-to-post test scores, while a normal level of achievment was gained in reading and in mathematics, in language arts a relative improvement of fully 8 NCEs was achieved.

There were also matched Spring 1983-84 MAT scores for 45 of the students who had been in HH 100 three years, with all but six of the students now testing in the normal range of achievement (+23%ile). For this group, absolute gains were achieved each year and in each of the three skill areas, while relative placement standings tended to improve in years two and three. Second and third-year gains were educationally significant in math (7 @ 10 NCE) and in language arts (6 @ 7 NCE) in years two and three although the trend was also a positive one in reading; from normal growth the second year to a 3 NCE gain in year three. This trend picture seemed a particularly important finding and will be discussed further in the implications section of this report.

Table 7
Comparison of Mean Metropolitan Standard Score, Percentile, and Normal Curve Equivalent, Changes for Third-Year Students, by Skill Area and Year, Spring 1983 - Spring 1984

Skill and Year	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	Difference NCE
Reading								
3 years	43	688	28	757	34	69	7	3
2 years	45	718	33	759	35	41	2	-
1 year	45	754	40	759	35	5	-5	-4
Math								
3 years	42	641	28	771	49	131	21	10
2 years	44	706	40	771	49	64	9	7
1 year	44	735	41	770	49	36	-5	-5
Language								
3 year	42	653	35	775	48	69	13	7
2 year	44	701	39	775	48	74	9	6
1 year	44	755	46	775	48	20	2	1

In addition to the fall-to-spring assessment of city-wide MAT data, each of the teams also administered the Comprehensive Tests of Basic Skills (CTBS). The CTBS was used since the teams felt that spring-to-spring testing did not show the most favorable achievement picture. Administering the MAT on a fall-to-spring basis had proven to be counterproductive since it required excessive use of the city-wide test. The fall-spring testing cycle recognized that while apparent gains might be larger than those which were typically obtained from spring-to-spring testing, they would in all probability be over-estimates of student gain. When one considers that fall test scores are usually depressed after the summer a higher level of spring gain can usually be expected; it is not, however, necessarily a better measure of actual growth.

For the 367 youngsters, or about 77 percent of the total, who had matched pre-to-post CTBS data, standard scores and NCEs were aggregated. NCEs were reconverted to percentiles for convenience in reporting. Note that in all instances where data were aggregated on a team, grade, and program basis, absolute gains could be reported as could relative standing improvements for most of the teams, grade levels, and program groupings and in each of the three skill areas with but few exceptions; here decreases were nonsignificant.

Table 8
Comparison of Mean CTBS Reading Standard Score, Percentile, and Normal Curve Equivalent Changes by Team, Grade, and Program, Fall 1983 - Spring 1984

Team and Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	NCE
BHS-9	56	720	24	737	25	17	-1	1
HPHS-9	73	722	25	[illegible]	27	18	2	1
BHS-9	87	717	22	[illegible]	19	10	-3	-2
FMS-8	69	702	26	713	15	11	-1	-1
QMS-7	50	693	29	711	34	18	5	3
QMS-8	21	705	28	722	30	17	2	1
Grade 7	50	693	29	711	34	18	5	3
Grade 8	90	703	27	715	26	12	-1	1
Grade 9	216	720	24	734	23	14	-1	1
Total Program	357	712	26	726	25	14	-1	-1

Table 9
Comparison of Mean CTBS Math Standard Score, Percentile, and Normal Curve Equivalent Changes by Team, Grade, and Program, Fall 1983 - Spring 1984

Team and Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	NCE
BHS-9	60	702	16	716	22	14	6	5
HPHS-9	81	713	28	716	22	3	-6	-4
BHS-9	87	715	30	722	33	7	3	-2
FMS-8	69	703	27	714	34	11	6	4
QMS-7	48	693	27	714	[illegible]	21	24	13
QMS-8	20	710	37	717	39	7	2	13
Grade 7	48	693	27	714	51	21	24	3
Grade 8	89	705	30	715	35	10	5	1
Grade 9	228	711	25	719	27	8	2	1
Total Program	366	707	27	718	32	11	5	3

Table 10
Comparison of Mean CTBS Language Arts Standard Score, Percentile, and Normal Curve Equivalent Changes by Team, Grade, and Program, Fall 1983 - Spring 1984

Team and Grade	N	Pretest SS	Pretest %ile	Posttest SS	Posttest %ile	Difference SS	Difference %ile	NCE
BHS-9	57	694	29	704	29	10	-1	-
HPHS-9	82	691	27	699	26	8	-1	-1
WHS-9	88	681	22	695	23	14	-1	1
FMS-8	69	682	29	688	28	6	9	-1
QMS-7	49	681	33	698	42	17	12	5
QMS-8	21	688	33	712	45	26	9	7
Grade 7	49	681	33	698	42	17	-2	5
Grade 8	90	689	33	693	31	4	1	1
Grade 9	227	688	25	699	26	11	1	1
Total Program	367	686	28	698	29	12	1	1

A review of the various test data suggest several findings. Over the past few years, youngsters were selected for HH 100 because they were generally testing below the 23rd percentile on a city-wide standardized test; the MAT or the CTBS-Espanol. During their first year in the program, HH 100 youngsters at all grade levels generally produced absolute gains in reading, math and language arts, and slight although not necessarily educationally significant placement standing improvements, particularly in language arts and math. While these improvements were somewhat less than the teams had projected, it was proposed that any evidence of normal or above normal growth could be considered a program gain during the first year of the program. Once HH 100 had the chance to overcome negative feelings, attitudes, and performance, higher levels of gain were to be expected and in all probability during subsequent program years. While no long-term projections were attempted because of a lack of experience with these remedial students over time, the data suggest that a 5 NCE gain or more can be anticipated over a three-year period. Whether this pattern will persist over time remains to be seen; hence, the issue is discussed in the recommendations section of this report.

Objective 2: Students ... will achieve ... a better percentage of attendance for the academic year than that of the host school.

Prior to the 1979-80 school year, a static percentage criterion had been used for comparative purposes. This criterion stated that all team percentages of attendance would be a fixed number of percentage points above the attendance of the hosting school and grade. While this standard worked well initially, once schools began to stress and achieve attendance levels which reached or exceeded 90 percent, the standard became almost impossible to be met. To cope with this problem, a sliding-percentage scale was established to cover each of the participating schools. End-of-year percentages of attendance were calculated for each of the teams and grade levels, and these were compared with desired and actual percentages of attendance for the hosting schools and grades. These figures are shown in Table 11, which follows. Note here that each of the teams and middle school grade levels reached and exceeded both the established standard and the actual percentage of attendance which was reached by the hosting school and grade. An overall project attendance percentage of 91.0% indicated that the objective was attained. All team percentages were also far higher than actual school attendance figures.

Table 11
Comparison of HH 100 Attendance Percentages with School and Grade Percentages
School Year 1983 - 1984

Team	Desired Host Standard	School/Grade Attendance	HH 100 Team/Grade Attendance	Difference Standard	Difference Attendance
HPHS-9	77	72	92.7	15.7	20.7
WHS-9	78	75	92.8	14.8	17.8
BHS-9	83	75	89.4	6.4	14.4
Fox-8	87	87	91.6	4.6	4.6
Quirk-7*	84	76	88.1	4.1	12.1
Quirk-8*	84	76	92.1	8.1	16.1
Total Project	82.2	76.8	91.0	8.8	14.2

*Second semester only.

Objective 3: Students ... will achieve a realistic and positive attitude towards themselves and school after ... one year in ... a cluster.

A Pupil Rating Form (PRF), developed by the evaluation office, and used by all teams

since 1971 was distributed to all HH 100 students at the end of the school year. The form was intended to obtain student perceptions in three areas. The first section contained items which asked where HH 100 might have helped the student during the school year while the second section asked the youngsters to assess their personal and scholastic growth in class, following through on assignments, and getting along with others. A third section contained four open-ended questions which asked students to identify the part of HH 100 which provided the most and least help and to list what they like best and liked least about the program. Objective questionnaire data were coded on data processing sheets, and aggregated by team and grade level, and for the program as a whole while written comments were analyzed, grouped by category, and narratively interpreted. Objective data for 479 pupils are shown in Table 12 which follows. Note that the ratings continue to be highly salutary with positive response patterns similar to those which were reported during the preceding three years.

Table 12
Analysis of HH 100 Team Program Rating Form Responses,
by Number and Percentage,
Spring 1984

Question	Much		Some		None		Some Adverse Effects		Cannot Judge	
	N	%	N	%	N	%	N	%	N	%
Do you think Higher Horizons has helped you so far this year to:										
1. Improve your reading ability?	208	48	191	44	5	1	16	4	17	4
2. Improve your study habits?	164	34	227	47	22	5	11	2	11	2
3. Improve your attitude toward learning?	227	47	148	31	25	5	12	3	22	5
4. Improve your classroom behavior?	209	48	148	34	35	8	16	4	27	6

5. Improve your out-of-class behavior?	160	33	150	31	73	15	4	1	47	10
6. Improve your getting along with your teachers?	228	48	131	27	47	10	8	2	20	4
7. Learn more about yourself?	200	41	170	36	40	4	6	1	19	4
8. Get specific help with your school work.	135	31	227	52	50	12	10	2	13	3
9. Get help in working out your personal problems?	96	22	153	35	139	32	9	2	38	9
10. Work toward a high school diploma?	246	57	141	32	18	4	6	1	24	6
11. Look forward to an education training beyond high school?	274	63	105	24	23	5	5	1	27	6
12. Identify some talents and interests which are other than academic?	149	35	184	43	51	12	16	4	30	7
13. Expect to achieve at a higher level in school?	223	47	169	35	17	4	9	2	12	3
14. Increased your parents' interest in your school?	167	35	154	32	59	12	14	3	40	8

15. Improved your parents' interest in your school work?	219	50	132	30	42	10	11	3	31	7

How would you rate yourself?

	All the time		Most of time		Only Some Times		Never		Cannot Judge	
	N	%	N	%	N	%	N	%	N	%
16. I do my homework.	121		246		53		7		7	
17. I do not disturb others in the class when they are working.	104	24	139	32	137	32	40	9	14	3
18. I can easily explain my ideas to others.	86	20	202	47	119	28	15	4	11	3
19. I take part in class discussions.	121	28	157	36	119	28	22	5	14	3
20. I want to learn and to improve myself.	295	69	111	26	15	4	3	1	5	1
21. When I come to school I am ready for the lesson and the tests of the day.	8	19	214	49	120	28	8	2	8	2
22. I feel I am doing better in classwork.	154	36	187	43	62	14	7	2	23	5
23. I get along with the other students in my class.	222	51	164	38	41	10	2	1	4	1
24. I finish my work on time.	114	26	254	59	57	13	7	2	2	1

25. I have confidence in myself.	27?	63	107	25	36	8	7	2	8	2
26. I do the very best I can.	217	50	146	34	58	14	4	1	6	1
27. I do my work without having to be told to do it.	142	33	197	46	76	18	8	2	8	2

All percentages have been rounded out and may not equal 100.

As was pointed out in an earlier section of this report, HH 100 staff reported that tests alone were not the only indicator of program gains. To support this contention, a number of items were submitted by the program liaison; these were also verified by the evaluator as an accurate indicator of program approach.

A list of the students who started Higher Horizons at HPHS four years ago during the 1980-81 school year, together with an HPHS 1984 graduation program showed that about 67% of the students who had started HH 100 four years ago had graduated with their class. These students also made up about 22% of the graduates. Of the 302 HPHS 1984 graduates, 67 were former HH 100 students. This left a total of 235 mainstream youngsters who had started out in a freshmen class which then numbered 609 students. Further, of the 67 HH 100 graduates, 19 or about 28%, received special awards and were honored at the awards day ceremony.

As further evidence of impact, members of the HPHS English staff were asked to evaluate graduating seniors who had started off their Hartford Public High School career as freshmen in the HH 100 program. Teachers were asked to rate each student in terms of general attitude toward learning, attendance, preparedness for class, and general behavior. The HH 100 graduating seniors were rated anonynomously by five members of the English staff, with ratings furnished for 52 or 78% of the whole. Here, English teachers indicated that about 27% of the youngsters would be rated excellent, 29% good and average respectively, and only 15% in the poor or could-not-rate categories.

Finally, all HH 100 graduates were surveyed by the liaison. Here, a questionnaire was administered at the end of the school year and students were asked to rate themselves in terms of how they had been helped by the HH 100 program. In keeping with the usual HH 100 survey format, students were also asked what part of HH 100 helped them the most, what they liked least and most about HH

100, and to provide suggestions for improving the program. Objective rating responses were tallied and converted to percentages, while anecdotal comments were summarized by area. Although data were tabulated on a tear-by-team basis, response patterns were similar so all objective ratings and comments were combined.

Table 14
Summary of Graduating HH 100 Alumni
Survey Responses, Spring 1984

Questions	N	Much N	Much %	Some N	Some %	Little or No N	Little or No %	Cannot Tell N	Cannot Tell %
1. Improve your reading ability?	61	37	61	23	38	38	11		
2. Improve your study habits?	68	35	51	30	44	2	3	1	2
3. Improve your attitude toward learning?	61	47	77	13	21	1	2		
4. Expect to achieve at a higher level in school?	64	34	53	29	45	1	2		
5. Do you think Higher Horizons has increased your parent(s) interest in your school?	64	23	36	27	42	6	9	8	13

As the table clearly indicates, at least 98% of the youngsters reported that their HH 100 experience four years ago had helped them in each of the rated areas. This pattern was consistent with reports submitted by youngsters who were still in the program. Alumni and student reports suggest strongly that HH 100 services continue to provide a positive impact on the students' continued high school educational career. And, since students also reported that HH 100 had increased their parents' interest in the school in at least three-quarters of the cases, here too is another area of influence albeit one that seldom receives high ratings at the secondary-school level.

When asked to look back at their ninth-grade HH 100 year, again reports were consistent with those obtained from current program participants. Youngsters reported that the part of Higher Horizons which helped them most, and parenthetically what they liked the most, was the assistance provided by teachers in the various subjects. While some students reported that they liked the projects and the trips, others noted that these same trips came as a result of working, that projects were class related, and that teachers took the time to push or to assist the youngsters along the way. Clearly, reported emphasis was on the academic role of the program and not merely on its the social aspects alone.

Comments about what was liked least about HH 100 together with suggestions for improvement were, in a majority of the instances, not submitted. While a few students disliked particular subjects, the placement of lockers, less freedom, and particularly too much homework, still others indicated that everything was just fine, that the program should be increased so as to include more students, and that more activities and more field trips were needed. One student noted that "the teachers should keep on pushing the students because in the end, they are the winners," while another said "there were no improvements needed since the program was perfect as it was".

COMPENSATORY PROJECT
INFORMATION SUMMARY (Schedule 1)
ED-205 Rev. 3-84

INSTRUCTIONS

1. Prepare three copies.
2. Retain a copy for files.
3. Send two copies to address below by June 15, 1984.

TO: Connecticut State Department of Education, Bureau of School and Program Development, Post Office Box 2219, Hartford, Connecticut 06145

FROM (School District Name)	Code	Evaluation Done by (Name & Phone No.)	Date Completed
Hartford	0 6 4	Robert J. Nearine 722-8591	7/23/84

1. Project Name		2. Public/Nonpublic CODE: Public=1, Nonpublic=2	
Higher Horizens 100	0 4		1

Project Expenditures (to nearest dollar)

3. From Chapter 1 Funds	4. From EERA Nonpublic Funds
$	$
5. From EERA Public Funds	**6. From Other Funds (Specify)**
$	GB $ 326,823

Project Pupil and Instructional Information

Grade	PK	K	1	2	3	4	5	6	7	8	9	10	11	12
7. Number of Pupils in Project									50	135	290			
8. Size of Instructional groups (nearest whole no.)									20	20	20			
9. Estimated Average Hrs. per week of Instruction per child (whole number)									35	35	35			

Report of Staff Paid from Compensatory Funds

Staff	Administrators	Teachers	Teacher Aides	Curriculum Specialists	Support Service Staff	Clerical Staff	Other Staff
10. Number of Chapter 1 Staff GB		25	5		counselors 6		
11. Number of Chapter 1 GB Staff in Full-time Equivalents (to nearest 10th)	.__	25.0	5.0	.__	6.0	.__	.__
12. Number of EERA Staff							
13. Number of EERA Staff in Full-time Equivalents (to nearest 10th)	.__	.__	.__	.__	.__	.__	.__

* GB Funding only.

APPENDIX

BHS _____

HPHS _____

WHS _____

Class of _____

HIGHER HORIZONS STUDENT SURVEY

When you were a ninth grade student, you were in the Higher Horizons Program. We would like to know how you feel about this program. Please help us to learn more about the program by answering the following questions. Answer by checking the proper line. Please return the completed form to the Higher Horizons Counselor.

It is not necessary to put your name on this paper.

Do you think Higher Horizons helped you to:

	Much	Some	Little or No	Cannot Tell
1. Improve your reading ability?	___	___	___	___
2. Improve your study habits?	___	___	___	___
3. Improve your attitude toward learning?	___	___	___	___
4. Expect to achieve at a higher level in school?	___	___	___	___

Do you think Higher Horizons has:

5. Increased your parent(s) interest in your school?	___	___	___	___

What part of Higher Horizons do you think helped you most?

_____

_____

What did you like most about the Higher Horizons program?

_____

_____

What did you like least about the Higher Horizons program?

_____

_____

What suggestions could you make to improve Higher Horizons?

_____

_____

IMPACT DATA (Schedule 2)
ED-205 Rev. 3-84

1. FROM: School District (Name)	Code	2. Type of Project	3. Subject Area Tested
Hartford	0 6 4	CODE: 1=Public, 2=Nonpublic: 1	CODE: 1=Reading, 2=Language Arts, 3=Mathematics: 1

4. Test Name/Edition	(See Code)			Month	Year
Metropolitan Achievement Tests	Edition 19 78	1	0	7. Date of Pretest: 0 3	8 3
5. Testing Schedule CODE: 1=Fall/Spring, 2=Fall/Fall; 3=Spring/Spring: 3	6. Project Setting CODE: 1=In Class, 2=Pullout, 3=Replacement, 4=Other (Specify): 1			8. Date of Posttest: 0 4	8 4

*Columns 8 and 12 (Raw Score) are completed only when the test manual converts raw scores to percentiles. These tests included the CAT 70, CAT 77, CTBS 73, SRA 71 and Stanford Task. If the test manuals convert standard scores to percentiles, this column is not completed.

*Column 5 (Test/Form Level Changed) is completed if in your pretest/posttest pattern, your district changes either the form or level on the posttest. enter 2 for "yes" and 1 for "No".

Grade	No. of Pupils with Matched Scores	Pretest/Posttest Level	Pretest/Posttest Form	Test Form/Level Changed 2 = Yes 1 = No	Name of Subtest	Pretest Mean Standard Score	Pretest Associated Raw Score	Pretest Associated %ile Equivalent	Pretest Associated Pre-test NCE	Posttest Mean Standard Score	Posttest Associated Raw Score	Posttest Associated %ile Equivalent	Posttest Associated Post-test NCE	NCE Gain (Col. 14-10)
(1)	(2)	(3)	(4)	(5)**	(6)	(7)	(8)*	(9)	(10)	(11)	(12)*	(13)	(14)	(15)
2														
3														
4														
5														
6														
7	43	Inter/Adv I	JS/KS	2	Reading	714		40	45	707		26	37	-8
8	95	Adv I/Adv I	JS/KS	1	Reading	706		28	38	736		33	41	3
9	232	Adv I/Adv I	JS/KS	1	Reading	753		40	45	766		38	44	1
10														
11														
12														

BACK—

- Project Objective(s)

See Page 8

- Summary/Interpretation of Evaluation Results

See Page 1

- Recommendations

See Page 2

- Dissemination

Please describe the methods which were used to disseminate the evaluation results for this project and identify the groups who received these results. (e.g., workshops, formal presentations, etc. for board members, parent groups, Chapter I staff, etc.)

Evaluations are presented to the Board of Education as an agenda item and are distributed to the superintendent's cabinet, project administration and staff, compensatory program administration, the Chapter I parent coordinator, and individual parents and staff members upon request.

IMPACT DATA (Schedule 2)
ED-205 Rev. 3-84

1. FROM: School District (Name)	Code	2. Type of Project	3. Subject Area Tested
Hartford	0 6 4	CODE: 1=Public, 2=Nonpublic: 1	CODE: 1=Reading, 2=Language Arts, 3=Mathematics: 2

4. Test Name/Edition	(See Code)		Month	Year
Metropolitan Achievement Tests Edition 19 78	1 0	7. Date of Pretest	0 3	8 3
5. Testing Schedule CODE: 1=Fall/Spring, 2=Fall/Fall; 3=Spring/Spring: 3	6. Project Setting CODE: 1=In Class, 2=Pullout, 3=Replacement, 4=Other (Specify): 1	8. Date of Posttest	0 4	8 4

* Columns 8 and 12 (Raw Score) are completed only when the test manual converts raw scores to percentiles. These tests included the CAT 70, CAT 77, CTBS 73, SRA 71 and Stanford Task. If the test manuals convert standard scores to percentiles, this column is not completed.

** Column 5 (Test/Form Level Changed) is completed if in your pretest/posttest pattern, your district changes either the form or level on the posttest, enter 2 for "yes" and 1 for "No".

Grade	No. of Pupils with Matched Scores	Pretest/Posttest Level	Pretest/Posttest Form	Test Form/Level Changed 2 = Yes 1 = No	Name of Subtest	Pretest Mean Standard Score	Pretest Associated Raw Score	Pretest Associated %ile Equivalent	Pretest Associated Pre-test NCE	Posttest Mean Standard Score	Posttest Associated Raw Score	Posttest Associated %ile Equivalent	Posttest Associated Post-test NCE	NCE Gain (Col. 14-10)
(1)	(2)	(3)	(4)	(5)**	(6)	(7)	(8)*	(9)	(10)	(11)	(12)*	(13)	(14)	(15)
2														
3														
4														
5														
6														
7	43	Inter/Adv I	JS/KS	2	Language	714		40	45	757		52	51	6
8	95	Adv I/Adv I	JS/KS	1	Language	733		48	49	735		40	45	-4
9	232	Adv I/Adv I	JS/KS	1	Language	748		42	46	778		48	49	3
10														
11														
12														

BACK—

IMPACT DATA (Schedule 2)
ED-205 Rev. 3-84

1. FROM: School District (Name)	Code	2. Type of Project	3. Subject Area Tested
Hartford	0 6 4	CODE: 1=Public, 2=Nonpublic: 1	CODE: 1=Reading, 2=Language Arts, 3=Mathematics: 3

4. Test Name/Edition	(See Code)		Month	Year
Metropolitan Achievement Tests Edition 1978	1	0	7. Date of Pretest: 0 3	8 4
5. Testing Schedule CODE: 1=Fall/Spring, 2=Fall/Fall; 3=Spring/Spring: 3	6. Project Setting CODE: 1=In Class, 2=Pullout, 3=Replacement, 4=Other (Specify): 1		8. Date of Posttest: 0 4	8 4

* Columns 8 and 12 (Raw Score) are completed only when the test manual converts raw scores to percentiles. These tests included the CAT 70, CAT 77, CTBS 73, SRA 71 and Stanford Task. If the test manuals convert standard scores to percentiles, this column is not completed.

* Column 5 (Test/Form Level Changed) is completed if in your pretest/posttest pattern, your district changes either the form or level on the posttest, enter 2 for "yes" and 1 for "No".

Grade	No. of Pupils with Matched Scores	Pretest/Posttest Level	Pretest/Posttest Form	Test Form/Level Changed 2 = Yes 1 = No	Name of Subtest	Pretest Mean Standard Score	Pretest Associated Raw Score	Pretest Associated %ile Equiv-alent	Pretest Associated Pre-test NCE	Posttest Mean Standard Score	Posttest Associated Raw Score	Posttest Associated %ile Equiv-alent	Posttest Associated Post-test NCE	NCE Gain (Col. 14-10)
(1)	(2)	(3)	(4)	(5)**	(6)	(7)	(8)*	(9)	(10)	(11)	(12)*	(13)	(14)	(15)
2														
3														
4														
5														
6														
7	43	Inter/Adv I	JS/KS	2	Mathematics	707		36	43	731		40	45	2
8	95	Adv I/Adv I	JS/KS	1	Mathematics	698		36	43	740		42	46	3
9	234	Adv I/Adv I	JS/KS	1	Mathematics	750		46	48	766		46	48	0
10														
11														
12														